**תרגיל בית 2:**

מגישים:

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**קוד תרגיל 1:**

;targ2.asm

.MODEL SMALL

.STACK 100h

.DATA

;define variables

Z DD 0

Ten DD 10

Two DD 2

Strprompt DB 'Enter number between -65535 and 65535 :',13,10, '$'

StrNum DB ' $'

Nodiv DB 'has no solution below 1000$'

strz DB 'z = $'

strDiv DB ',x = ,y = ','$'

sign DB ' $'

X DD 0

Y DD 0

DIV1 DD 0

DIV2 DD 0

resx DD 0

resy DD 0

.CODE

.386

MOV AX,@DATA

MOV DS,AX

;prints Strprompt

MOV AH,9

MOV DX,OFFSET Strprompt

INT 21h

;scan character

MOV AH,1

INT 21h

;check if the number is positive or negative

MOV DI,0

MOV sign[0],AL

CMP AL,'-'

JNE Posnumber

;put the '-' sign in the StrNum string

Negnumber:

MOV StrNum[DI],AL

MOV AH,1

INT 21h

INC DI

;builds the StrNum string and the number itself

Posnumber:

CMP AL,13 ;if the user typed enter

JE next

MOV StrNum[DI],AL

MOV AH,0

SUB EAX,'0'

ADD Z,EAX

MOV EAX,Z

MUL Ten

MOV Z,EAX

INC DI

MOV AH,1

INT 21h

JMP Posnumber

;divides the number in ten

next:

MOV EDX,0

MOV EAX,Z

DIV Ten

MOV Z,EAX

;finds the dividers

MOV ECX,0

Dividers:

MOV EAX,Z

INC ECX

MOV EDX,0

DIV ECX

CMP ECX,Z

JE end1

CMP EDX,0

JNE Dividers

;calculating X and Y

MOV DIV1,EAX

MOV DIV2,ECX

ADD EAX,ECX

MOV EDX,0

DIV Two

CMP EDX,0

JNE Dividers

MOV X,EAX

SUB EAX,DIV2

MOV Y,EAX

;checking if X and Y are lower than 1000

CMP EAX,1000

JA Dividers

MOV EAX,X

CMP EAX,1000

JA Dividers

;check if the equation is correct

MOV EAX,X

MUL X

MOV resx,EAX

MOV EAX,Y

MUL Y

MOV resy,EAX

SUB resx,EAX

MOV EAX,resx

CMP EAX,Z

JNE Dividers

;check if the number is negative or positive

MOV AL,sign[0]

CMP AL,'-'

JNE disPos

MOV DI,9

MOV EAX,Y

;converts number to a string

convertNegY:

MOV EDX,0

DIV Ten

ADD EDX,'0'

MOV strDiv[DI],DL

DEC DI

CMP EAX,0

JNE convertNegY

MOV DI,18

MOV EAX,X

convertNegX:

MOV EDX,0

DIV Ten

ADD EDX,'0'

MOV strDiv[DI],DL

DEC DI

CMP EAX,0

JNE convertNegX

disPneg:

;prints strz

MOV AH,9

MOV DX,OFFSET strz

INT 21h

;prints StrNum

MOV AH,9

MOV DX,OFFSET StrNum

INT 21h

;prints strDiv

MOV AH,9

MOV DX,OFFSET strDiv

INT 21h

JMP endlabel

disPos:

MOV DI,9

MOV EAX,X

;converts number to a string

convertX:

MOV EDX,0

DIV Ten

ADD EDX,'0'

MOV strDiv[DI],DL

DEC DI

CMP EAX,0

JNE convertX

MOV DI,18

MOV EAX,Y

convertY:

MOV EDX,0

DIV Ten

ADD EDX,'0'

MOV strDiv[DI],DL

DEC DI

CMP EAX,0

JNE convertY

;prints strz

MOV AH,9

MOV DX,OFFSET strz

INT 21h

;prints StrNum

MOV AH,9

MOV DX,OFFSET StrNum

INT 21h

;prints strDiv

MOV AH,9

MOV DX,OFFSET strDiv

INT 21h

JMP endlabel

end1:

;prints StrNum

MOV AH,9

MOV DX,OFFSET StrNum

INT 21h

;prints Nodiv

MOV AH,9

MOV DX,OFFSET Nodiv

INT 21h

;end program

endlabel:

MOV AH,4Ch

INT 21h

END

**פלט תרגיל 1:**



